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# THE GRADUAL PREPARATORY TREATMENT OF THE COMPLICATIONS OF URINARY AND FÆCAL FISTULÆ IN WOMEN,

*Including a Special Consideration of the Treatment of Pyelitis by a New Method, and the Prevention of the Evils of Incontinence of Urine by a New System of Drainage.**

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In the course of my experience in the treatment of urinary and fæcal fistulæ, as I encountered new difficulties, I have described from time to time the cases and the means by which I endeavored to overcome them; but all, especially the more recent of my results, have not been published. The object of the paper, of which this is an abstract, is therefore to set these latter before the profession and to combine them with what I have already written. In this way I hope to communicate in a more systematic manner the results of my experience and observation in this department of the subject of fistula, which have extended over a period of thirty-four years.

The object of my method of treatment, preparatory to

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the performance of the operation for the closure of a fistulous opening, is to prevent and to overcome the injurious effects of incontinence of urine, and to remedy the complicating injuries and diseases of all the organs involved. In other words, to remove as far as possible the obstacles in the way of the easy performance and success of the final operation, and to cause the diseased tissues to return to a state of health, so that not only will the incontinence of urine be cured, but the functions of all the organs be preserved.

*Treatment and Prevention of the Effects of Incontinence of Urine.*—Inflammation and ulceration of the vagina, vulva, and buttocks, due to the contact of ammoniacal urine, may be treated in the usual way by cleanliness and stimulating and astringent applications. Although by these measures the sufferings of the patient are relieved to a considerable extent when for any cause the closure of the fistula is long delayed, it is of the utmost importance that we should possess some form of instrument by which the urine may be drained away and its contact with the mucous membranes, integument, and linen of the patient be avoided.

After many experiments, I have recently devised an instrument which accomplishes these results in a perfect manner, and have also been able to combine, in the same instrument, drainage with the dilatation of cicatricial contractions of the vagina. The forms of the instrument which concern us here are intended to secure drainage alone, and I have called them utero-vesical and utero-vesico-urethral drainage supports. The former is applicable to most cases, to all positions of the body, and is the most convenient. The latter is suited to the recumbent position and to cases where the perinæum is lacerated.

These instruments can be introduced and removed by the patient whenever necessary and without difficulty. They

are small, simple, free from angles and sharp borders, are readily kept clean, excite no discomfort or irritation of the vagina, and do not press upon the rectum or bladder, nor interfere with locomotion. While possessing all these qualities, they collect the urine and conduct it away with a degree of perfection that to the patient is a constant cause of wonder and delight. I have now five cases in which the different forms of the instrument are in use. In one of the cases there is entire destruction of the urethra. In all, the instrument performs its functions perfectly.

*The Treatment of the Complications of Urinary and Fæcal Fistulæ.*—Very few cases of fistula are simple. The same cause, the pressure of the child's head, which produced the perforation of the vesical or rectal wall injures to a greater or less extent other parts of the vagina, and frequently the uterus, ureters, and urethra. These injuries and the distortions of the structures involved, the result of the contraction of the cicatricial material produced in the healing process, constitute the most frequent complications. In the worst cases, to them are added subsequent disease of these organs and the bladder, and fixation of the uterus, the consequence of puerperal cellulitis and peritonitis.

*Cicatricial Contractions and Distortions of the Vagina.*—General thickening and rigidity of the vaginal walls and narrowing of the vagina by the presence of cicatricial bands and adhesions render the exposure of the fistula difficult, and tend to prevent the easy approximation of its borders. The operation for closing the opening is thus made difficult, and, owing to great tension, the sutures cut and it fails.

The means by which I overcome these difficulties are, mainly, division of the cicatricial material and gradual dilatation of the vagina. In cases in which the vagina is very much contracted my method consists first in the section of

all the prominent bands and adhesions, and afterward in the dilatation of the vagina with hard and soft instruments.

When it is necessary to give ether, the patient is placed in the knee-chest position and secured by means of an apparatus which I have had constructed for the purpose. In the ordinary treatment of the case this is unnecessary. I place the patient simply in the supported knee-elbow position. The parts are exposed to view by means of my dilating speculum and perineal elevator, and the bands, which are at the same time rendered tense and prominent by these instruments, are divided while on the stretch by means of sharp and probe-pointed bistouries and the peculiar knife which I show you.

The subsequent dilatation of the contractions of the vagina is produced by hard and soft dilators. On account of differences in form and in the manner in which they are used, I have divided them into two classes—the vulvo-vaginal and intra-vaginal.

The hard dilators which I show you are made to combine drainage with dilatation. The vulvo-vaginal can be distinguished from the intra-vaginal by their greater length, and the beak-like extremity, which rests on the perinæum. The intra-vaginal instruments are worn altogether inside of the vulva, and rest upon the posterior surface of the arch of the pubes and the perinæum. A set of the vulvo-vaginal dilators consists of five sizes, ranging from thirty to fifty millimetres in diameter, and a set of the intra-vaginal of eight sizes, ranging between thirty and sixty-five millimetres.

The soft dilators are made of coarse sponge, torn in pieces, and covered with oil silk, and may be of any size up to seventy millimetres in diameter, or larger if necessary. The difference between the vulvo-vaginal and the intra-vagi-

nal forms of these soft instruments is, that the former are made longer than the latter, but never so large, the sizes being graded like the hard instruments. I have been unable to combine drainage with dilatation when the sponge instruments are used, but, if they are frequently removed, and the urine which they absorb squeezed out, the vagina and vulva may be kept comparatively dry.

Although only a very imperfect sort of drainage, which I have called sponge absorption, can be obtained with sponge dilators, they are superior in many respects to the hard instruments. A much larger dilator can be introduced, and, being soft, it causes less pain. In virtue of its elasticity, the sponge accommodates itself to the shape of the vagina when the organ is irregularly contracted, and, by the imbibition of urine, increases in size after introduction.

Time, patience, and perseverance are all that are necessary to produce, by the gradual division of opposing cicatricial bands and the systematic use of these dilating instruments, a distension of the vagina nearly equal to that caused by the child's head at the time when the injury was done. As the dilatation proceeds, the exact nature of the lesions present becomes more evident, and the form and the relations of the fistula to the surrounding structures are more distinctly exposed to view ; the cervix uteri, which was perhaps altogether hidden, becomes visible and the anterior and posterior *culs-de-sac* are restored ; the vaginal walls are relaxed and the uterus made movable ; the mucous membrane of the vagina loses its fiery red hue and assumes a natural pink color ; the inflammatory thickening of the vaginal walls melts away beneath the pressure, and the borders of the fistula lose their leather-like hardness, become smooth and soft, and may be more easily approximated.

*Fixation of the Uterus.*—When there is great loss of tissue at the fistulous opening and the uterus is fixed, the

remnants of the septum can never be sufficiently stretched to bridge the interval. The uterus must be rendered movable, so that the cervix can be drawn down and made subservient to the closure of the opening.

The fixation of the uterus may be overcome by upward pressure, made with the dilators already described, and by a sort of passive motion of the uterus, which is secured by traction, frequently repeated, with a hook fastened in the cervix.

The practical use of these measures is sufficient to demonstrate their efficiency, but, in order to render the results obtained by them clear to all, I made an experiment, while in Vienna, in a case of fistula in which there was immobility of the borders, due to fixation of the uterus. The results of this experiment have been reported by Bandl.* At the beginning of the treatment the edges of the opening could not be approximated by any amount of force. After section of the band and dilatation of the vagina continued for four days, they could be brought together imperfectly by the exercise of two thousand eight hundred grammes of traction, measured by a scale. After the continuance of the treatment for seventeen days longer, one hundred and twenty grammes were sufficient for this purpose, and the operation for the closure of the fistula had become easy.

The advantages secured by the use of these preparatory measures are also well illustrated in certain more special forms of fistula. By the aid of my button suture and these preparatory measures, with the modifications which I have described fully in my paper, I have been able to treat successfully vesico-utero-vaginal fistulæ with incarceration of the cervix uteri in the bladder, restoring the cervix to its natural position in the vagina and closing the vesical opening without the formation of a pouch in the bladder; I have

* "Wiener medizinische Wochenschrift," Nos. 49–52, 1875.

been able to reach and to close vesico-utero-cervical fistulæ, attended with loss of tissue, even when the opening was situated above the vaginal junction, and have met with the same success with recto-utero-vaginal fistulæ, with incarceration of the cervix in the rectum. All these conditions have been and are still considered without remedy, except by kolpokleisis, occlusion of the os uteri, or by the perpetuation of the incarceration of the cervix in the bladder or rectum.

*Cystitis, Contraction, and Prolapse of the Bladder* are frequent complications, and must be treated. The principal cause of cystitis is the retention in the bladder of stagnant pools of urine in pouches of the mucous membrane, or as the result of imperfect drainage of the urine through the fistulous opening. The sacculation of the vesical mucous membrane at the base of the bladder is due to the distortion of the anterior wall of the vagina by cicatricial bands. The treatment of cystitis consists, therefore, in the frequent irrigation of the interior of the bladder and the obliteration of the folds of the mucous membrane by dilatation of the vagina.

Atrophy or contraction of the bladder is best treated by obturation of the fistulous opening by means of an oil-silk sponge dilator placed in the vagina. A sufficient quantity of urine is thus retained in the bladder to gradually distend its walls. A prolapsed bladder should be reduced in the supported knee-chest position, the abrasions of the mucous membrane touched with nitrate of silver, and the reproduction of the condition prevented by filling the vagina with one of the forms of dilators already described.

*Injuries of the Ureters.*—One of the ureters may be opened by a slough which does not penetrate the whole thickness of the septum. By an injury of this kind a uretero-vaginal fistula is produced. One or both of the ureters

may also form a part of the border of a vesico-vaginal fistula. In the first form of injury the ureter must be turned into the bladder before the fistula is closed, thus converting it into a vesico-uretero-vaginal fistula. In all cases, when the ureters are involved, unless they are slit up on their vesical surfaces, their orifices are liable to be obstructed by the sutures or to be occluded by the apposition of the borders of the fistula. This little operation is best done, as a preparatory measure, long enough before closure of the fistula to allow healing to occur. Stenosis and eversion of the orifices of the ureters frequently occur in these cases, and it is therefore important to ascertain, before closing a fistulous opening, whether these conditions exist. When such a condition is present, the lower part of the ureter should be divided and the incision should extend through the vesical mucous membrane, and be followed by dilatation with sounds if necessary.

*Pyelitis.*—The causes which lead to the development of pyelitis, as a complication of fistula, are cystitis and obstruction of the ureter or ureters. The principal symptoms which I have observed to be present in this disease are more or less constant pain in the lumbar region, attacks of renal colic, nausea and vomiting, anæmia, emaciation, and the cachexia of chronic suppuration. At times the course of the disease is varied by the occurrence of severe rigors, accompanied and followed by great pyrexia. Pus and blood may be seen to exude from the orifice of the ureter, which is exposed to view by the fistulous opening.

I have recently devised a new method of treatment for this disease, and have used it in two cases, both of which are now cured. It consists essentially in dilating the ureter and washing out the pelvis of the kidney by means of a catheter. In my first case, which I have reported at length in my paper, the pyelitis involved the pelvis of the left kid-

ney, and occurred as a complication of a large urethro-vesico-utero-vaginal fistula implicating both ureters and the greater part of the septum. It was occasioned by the obstruction of the orifice of the ureter, due to the contraction of the cicatricial border of the fistula of which it formed a part. The patient was suffering from frequent paroxysms of renal colic, rigors were occurring at short intervals, and her temperature was constantly elevated, ranging between 102° and 105°. Pus could be seen exuding in considerable quantities from the left ureter. The patient was emaciated and her complexion was pale and sallow. She was evidently rapidly dying from exhaustion, induced by the fever and the pain. The condition of the patient continued to grow worse and the case more hopeless until December 26th of last year, when I passed a small olive-tipped catheter through the ureter into the pelvis of the kidney. Carbolized water was then injected with a syringe, and a small quantity of fœtid pus washed out. The catheter was allowed to remain in place twenty-four hours without causing any evil consequences, and the irrigation of the pelvis of the kidney repeated at frequent intervals. Afterward the douching was repeated daily, the catheter being introduced and removed without difficulty. The condition of the patient improved after this treatment was begun with remarkable rapidity, the temperature became normal in twenty-four hours, and the pus gradually diminished in quantity, and at the end of six weeks entirely disappeared. The patient has since gained about thirty pounds in weight, her general health has become good, and the fistulous opening is now ready for operation.

In the course of the treatment of this case I made several interesting observations on the relative secreting capacities of the two kidneys, the details of which I have not time to tell you in this abstract. I also caused to be constructed

the flexible steel renal sound which I show you. It is intended for purposes of diagnosis rather than of treatment, but was of service in this case in dislodging the detritus from the pelvis of the kidney.

Encouraged by my success in this case, I conceived the idea of extending this method of treatment to cases of pyelitis when no fistulous opening existed. Fortunately, I soon had an opportunity. Mrs. B. came under my care. She gave a history of symptoms similar to those already described. Hæmaturia formed a marked feature of the case, and had continued for three years and a half. The pelvis of the right kidney was suspected, from the location of the pain, to be the seat of the disease. In order to expose the right ureter, an opening was made in the bladder at the point where it pierces the vesical mucous membrane.

The name which I suggest for this new operation is kolpo-uretero-cystotomy; it is appropriate because it corresponds with the established nomenclature, and serves to distinguish the operation from kolpo-cystotomy done for cystitis, and kolpo-ureterotomy, which may be done in future.

When the orifice of the ureter was thus exposed, blood was seen exuding from it. The ureter having been made accessible, the subsequent treatment was the same as in the previous case, and the result equally fortunate. The discharge disappeared in a few weeks. The use of my utero-vesical support prevented all inconvenience from incontinence of urine, and made the patient so comfortable that haste in closing the opening was considered unnecessary. She was therefore sent home to Charleston, and instructed to return for this purpose when she was stronger and fully restored to health.

She wrote me on August 12th the following report of her condition: "The drainage works perfectly. There is no escape of urine, except sometimes a little while lying

down. I do not suffer from any irritation whatever. The instrument keeps the uterus in position. I have not suffered any pain in the kidneys. I feel better than I have for years. I have just been weighed, so will acquaint you with the numbers—one hundred and nine pounds, having gained nineteen pounds in three months (that is, since the operation). I am able to attend church services. I can either ride or walk. Neither gives me any uneasiness. My friends look at me, and speak of my improvement with astonishment."

All the complications of gravity of urinary and fæcal fistulæ having now been studied, what I have already said may be, in conclusion, enforced by a brief summary of certain important facts and principles, and an enumeration of the results that I believe may be secured by the employment of the methods of treatment which I have described.

1. The importance of the complications has not been duly appreciated. They form in many cases the principal difficulty in the way of the successful performance of the operation for the closure of the fistulous opening. In other cases, when the fistula is cured but the complications left without treatment, they lead sooner or later to suffering or to the death of the patient. The greatest care should, therefore, be taken to discover and remove them.

2. Kolpokleisis, occlusion of the os uteri, and incarceration of the cervix in the bladder or rectum, are unjustifiable operations. They destroy the functions of the genital organs, and lead to cystitis, the formation of renal and vesical calculi, pyelitis, and other grave diseases. Moreover, they are unnecessary operations. By means of the gradual preparatory treatment of the complication, and by the aid of my button suture and dilating speculum I have been able to overcome all the difficulties which have been described as indications for their performance.

3. The association of intra-vaginal drainage with dilatation of the vagina is a great improvement. The inconvenience and evil effects of incontinence of urine are thereby lessened, and the duration of the treatment is shortened by the more rapid healing of the incisions and the formation of less cicatricial material in the reparative process.

4. We now possess a means of palliating the suffering due to incontinence of urine in the small percentage of cases of fistula which are incurable by any method—even the dangerous one of kolpokleisis. I believe some form of drainage instrument may be adapted to every case, and these patients may be thus restored to the enjoyment of life and the performance of its duties.

5. The possession of a system of drainage will widen the scope of the operation of kolpo-cystotomy done for cystitis by removing the evils of incontinence of urine, now the chief objection to its performance.

6. Finally, I believe the operation which I have called kolpo-uretero-cystotomy, followed by the exploration and treatment of the diseases of the ureter and pelvis of the kidney, has a brilliant future of usefulness before it. In the treatment of pyelitis, renal calculi, and obstruction of the ureters, it will restrict within narrow limits the operations of nephrotomy and nephrectomy.

*Discussion.*

Dr. Graily Hewitt, of London, thought the operation described in the paper promised to be of much value, and would probably lead to important changes in our methods of treating cystitis and affections of the kidney. The ingenuity the author had brought to bear in getting rid of contractions and adhesions by constant pressure was remarkable, but the new operation for the treatment of pyelitis was most original and appeared to promise great results. Hitherto extirpation of the kidney had seemed to be the only treatment available in certain cases.

Conservative surgery here stepped in, and in Dr. Bozeman's snake-like sound we seemed to have a very important assistance in carrying out a conservative treatment in appropriate cases.

Dr. A. Hewson, of Philadelphia, had effected much good in the class of cases referred to by Dr. Bozeman by dilating the vagina for twenty minutes daily with air-pressure. He had applied gases—carbon dioxide and hydrogen sulphide—directly to the location of the morbid parts through such instruments, keeping up the application of these gases for at least twenty minutes daily, the yielding and dissipating being apparent in the relief and comfort after the first application.